

REMARKS

Claims 1, 2, and 4-19 are pending in the present application. In this response to the Office Action, the specification has been amended, as explained below. No amendments to the claims are made.

Accordingly, proper consideration of each of the pending claims is respectfully requested.

Election/Restriction

The Examiner has withdrawn the restriction requirement and claims 1-2 and 4-19 are treated on their merits. Applicants appreciate the Examiner rejoining claims 13-16 in the Office Action.

Specification

At pages 2-3 of the Office Action, the specification has been objected to because of informalities.

In the present response, Applicants amended the specification as suggested by the Examiner. Thus, upon entry of the present amendments to the specification, the objection has been overcome. Applicants respectfully request that the Examiner withdraw the objection.

Claim Rejections under 35 U.S.C. §§ 102 and 103

At pages 3-4 of the Office Action, claims 1, 2, 7, 9, 11, 12, and 17 are rejected under 35 U.S.C. § 102(b) as being anticipated by Deposition of Titania Nanoparticles on Spherical Silica (the Ryu reference).

At pages 4-9 of the Office Action, claims 4-10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the Ryu reference as applied above and further in view of Wakabayashi U.S. '852 (U.S. Patent No. 4,248,852). Further, claims 13, 18, and 19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the Ryu reference as applied above and further in view of WO '762 (WO 03/011762 (Inoue et al., text of US 2004/0238410)). Finally, claims 14-16 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the Ryu reference in view of WO '762 as applied above and further in view of Wakabayashi U.S. '852.

Applicants respectfully traverse and request that the Examiner withdraw the rejections based on the following explanation.

Issues of Anticipation and Obviousness over the Cited References and the Combination thereof

In determining anticipation, "a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

In connection with the present application, the Examiner alleges that the present invention (claims 1, 2, 7, 9, 11, 12, and 17) are anticipated by the Ryu reference. However, the present invention as recited in claim 1 is clearly distinguished from the primary reference (*i.e.*, the Ryu reference) because the Ryu reference fails to disclose or suggest all of the claimed features, especially the claimed feature that "the titanium oxide is deposited on the surface of the inorganic oxide so as to be chemically and/or microscopically united to the inorganic oxide."

The Ryu reference discloses at the last line in the right column on page 492 to the second line in the left column on page 493, as follows:

It was attributed to higher crystallinity (anatase) of titania on the surface (XRD data is not shown in this paper).

In short, in the Ryu reference, the titanium oxide deposited on the surface of silica (TiO₂-coated SiO₂) is attributed to higher crystallinity (anatase) of titania on the surface (XRD).

On the other hand, as disclosed in the specification, for example, the main XRD peak $2\theta=26.5$ of titanium oxide (anatase) is not detected in connection with the present invention. Thus, the titanium oxide of the present invention (claim 1) is "amorphous" rather than crystalline "anatase" form (see, for example, page 6, line 24 to page 7, line 10, page 8, line 19 to page 10, line 6, page 33, line 20 to page 34, line 8, page 41, line 19 to page 42, line 2, and page 43, line 23 to page 44, line 6 of the present specification).

As explained above, since the Ryu reference fails to disclose or suggest all features of the present invention, and thus the present invention is not anticipated by the Ryu reference.

Further, the secondary references (*i.e.*, Wakabayashi U.S. '852 and WO '762) also fail to disclose or suggest such features of the present invention. Also, the cited secondary references

fail to account for the deficiencies of the primary reference. In addition, there is no reasonable expectation of success and/or rationale for one skilled in the art to arrive at the present invention based on the combinations of the Ryu reference and the secondary references. Likewise, a *prima facie* case of obviousness is not established based on the combinations of the cited references. Thus, the present invention (claim 1 and its dependent claims) is not obvious over the combinations of the cited references.

Further, in connections with claims 13-16 (a process for producing layered porous titanium oxide), the primary reference (*i.e.*, Ryu reference) fails to disclose or suggest employment of titanium chloride, titanium sulfate, or titanyl sulfate, as recited in claim 13. Therefore, there is no reasonable expectation of success and/or rationale for one skilled in the art to arrive at the claimed method based on the combinations of the Ryu reference and the secondary references. Thus, the present invention (claim 13 and its dependent claims) is not obvious over the combinations of the cited references.

Based on the foregoing explanations, Applicants respectfully request that the Examiner withdraw the rejections.

CONCLUSION

In view of the above amendment, applicant believes the pending application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Toyohiko Konno (Reg. No. L0053) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

By

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